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Fistula between left coronary artery and superior vena cava

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SUMMARY A fistula ran from the left coronary orifice via a tortuous course to the superior vena cava.

Coronary artery fistulas are rare anomalies and most commonly drain into a right sided cardiac chamber.[1] We could find only five reports of cases of an anomalous coronary vessel draining into the superior vena cava and we report what we believe to be the first example of a left coronary fistula draining into the superior vena cava.

Case report

The patient, a 49-year-old truck driver, was referred to the Royal Hobart Hospital by his local doctor with a diagnosis of aortic regurgitation. He complained of intermittent palpitation which had been present for a long time and of mild stable dyspnoea present for about five years. He had smoked 20 cigarettes a day until stopping 10 years ago, and denied any chest pain.

On examination, the jugular venous pressure was normal. All peripheral pulses were present and normal. The heart was not enlarged clinically and the blood pressure was 140/90 mmHg. There was a grade 1/4 continuous "machinery" murmur present at the left sternal edge, the intensity of which varied with posture. There were no other abnormalities. The chest *x*-ray, electrocardiogram, and lung function tests were all normal. During an exercise tolerance test which lasted 11½ minutes and reached a load of 225 watts, he suffered neither unusual dyspnoea nor chest pain and the electrocardiogram remained normal. At cardiac catheterisation, a hydrogen curve recorded in the pulmonary artery gave an appearance time of 3·5 s suggesting left-to-right shunt but this was not detectable by measurements of oxygen saturation. Aortography showed an anomaly of the left coronary artery and selective coronary catheterisation was therefore performed using Judkins' technique. A large vessel arose from the left sinus of Valsalva in the region of the left coronary orifice (Fig. 1 and 2); it had a tortuous course and passed posteriorly, medially, and superiorly, ultimately joining the superior vena cava at its junction with the right atrium.

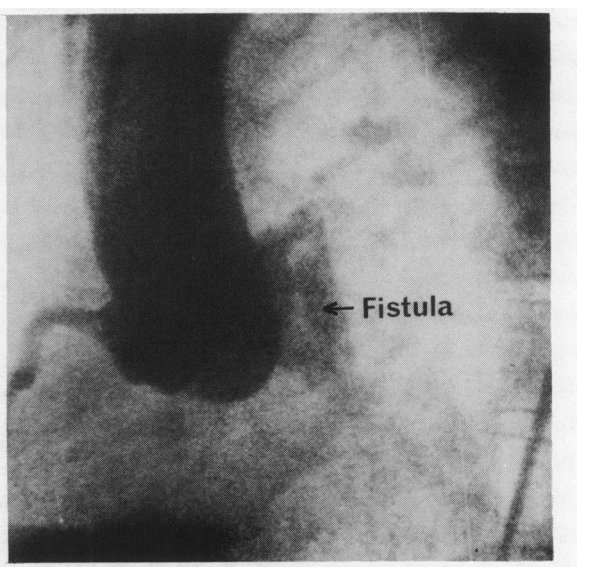

Fig. 1 *Aortogram. LAO projection.*

Discussion

We believe this to be the first report of a left coronary artery to superior vena cava fistula of this type. Previous fistulas have been of three types: (i) circumflex coronary artery to superior vena cava;[2] (ii) circumflex coronary artery to persistent left superior vena cava;[3] (iii) right coronary artery to superior vena cava.[4–6]

In our case, the orifice of the anomalous vessel was coincident with the origin of the left coronary artery. The clinical features were similar to those previously reported cases of fistula between a coronary artery and the superior vena cava fistula. Our patient had excellent exercise tolerance and no evidence of a coronary steal syndrome, or of significant shunting; in view of the complication rates in older patients undergoing corrective surgery for these anomalies,[7] we decided to treat the patient conservatively.

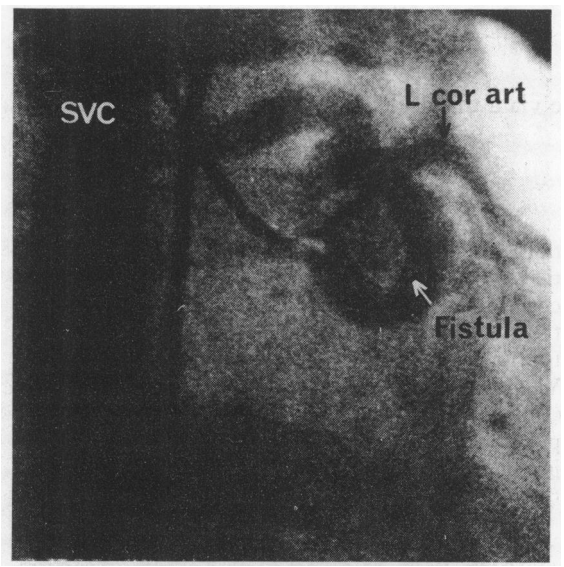

Fig. 2 *Selective injection into left coronary orifice. RAO projection.*

References

1 Levin DC, Fellows KE, Abrams HL. Hemodynamically significant primary anomalies of the coronary arteries. *Circulation* 1978; **58:** 25–34.
2 Gensini GG, Palacio A, Buonanno C. Fistula from circumflex coronary artery to superior vena cava. *Circulation* 1966; **33:** 297–301.
3 Ogden JA, Stensel HC Jr. Congenital arterial fistulas terminating in the coronary venous system. *J Thorac Cardiovasc Surg* 1972; **63:** 172–82.
4 Phillips SJ, Goodman P, Goldfine R, *et al.* Blood flow measurements during repair of a right coronary artery superior vena cava fistula. *Ann Surg* 1973; **177:** 63–5.
5 Edis AJ, Schattenberg TT, Feldt RH, Danielson GK. Congenital coronary artery fistula: surgical considerations and results of operation. *Mayo Clin Proc* 1972; **47:** 567–71.
6 Morettin LB. Coronary arteriography: uncommon observations. *Radiol Clin North Am* 1976; **14:** 189–208.
7 Liberthson RR, Sagar K, Berkoben JP, Weintraub RM, Levine FH. Congenital coronary arteriovenous fistula. *Circulation* 1979; **59:** 849–54.

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